REMARKS

Reconsideration of this application is respectfully requested. As suggested in the Action, attached is a substitute Abstract. The specification has been updated to reflect the related applications, as requested by the Action.

The double patenting rejection of claim 21 has been overcome by correcting the dependency of that claim. Claim 21 as amended depends on claim 17. Correcting the dependency of claim 21 also overcomes the rejection of claim 21 as being indefinite.

The rejection of claims 1, 3-8, 12, 14-17 and 19-24 as being anticipated by Laskaris (U.S. Patent No. 5,548,168) is traversed. The rejected claims are directed towards a coil support for a superconducting coil on a rotor, wherein the coil support braces the end section of the coil and is thermally isolated from the rotor core. Laskaris does not disclose a coil support that braces the "end section" of the coil.

Laskaris '168 discloses a "contoured housing 66" for a cooling tube (84). The contour housing extends along the outer periphery of the rotor coil winding . At the end section of the coil winding, the housing (66) is on the outside edge of the coil. The coil housing (66) provides no support to the upper or lower surfaces of the end sections of the coil (20). Upper and lower supports are provided in the claims invention to brace the coil ends with respect to torsional forces and bending forces that may act on the coil ends.

The claims have been amended to make clear that the coil support braces the end section of the coil. In particular, claim 1 has been amended to state that the coil support attaches along a side of the coil end section "parallel to a rotor axis". In contrast, the housing (66) shown in Laskaris '168 is along an outer periphery of the coil which is perpendicular to the rotor axis. Laskaris '168 does not disclose or suggest a coil support on one or both sides of the end coil section that are parallel to the rotor axis.

Further, Laskaris does not disclose or suggest the "pair of plates" recited in dependent claims 3 and 19. The spacer plate (72) shown in Laskaris are not plates which sandwich the end section of the coil. Rather, the spacer plates only cover a small corner of the coils.

The obviousness rejection of claims 9-11 and 25-27 are traversed for substantially the same reasons as stated above regarding Laskaris '168. Further, the Rios patent (U.S. Patent No. 4,277,705) does not suggest that the Laskaris coil housing (66) be modified to form the claimed invention. The coil support disclosed in Rios are end sections (20) of a stack of coils and plates that form the rotor core. The rotor core section (30) does not provide support to the end section of the coils. Rios does not suggest that the coil winding housing (66) in Laskaris '168 be modified to form the end coil support section shown in the present invention. Further, Rios does not disclose or suggest the side coil support as shown in the present application.

The anticipation and obviousness rejection should be withdrawn. All claims are believed to be in good condition for allowance. If any small matter remains outstanding, the Examiner is respectfully requested to telephone Applicant's attorney. Prompt reconsideration and allowance of this application is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claim(s) by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____
Jeffry H. Nelson
Reg. No. 30,481

JHN:glf
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT

HIGH TEMPERATURE SUPER-CONDUCTING ROTOR COIL SUPPORT AND COIL SUPPORT METHOD

ABSTRACT OF THE DISCLOSURE

A rotor for a synchronous machine is disclosed comprising: a rotor core; a super-conducting coil winding extending around at least a portion of the rotor core, [said] the coil winding having a coil end section adjacent an end of said rotor core, and a coil support bracing [said] the end section and being thermally isolated from [said] the rotor core.

IN THE SPECIFICATION

[0015] U.S. Patent Application Serial No. [__/___,___] 09/854,932 entitled "Superconducting Synchronous Machine Having Rotor And A Plurality Of Super-Conducting Field Coil Windings, filed May 15, 2001 (atty. dkt. 839-1004);

[0016] INTENTIONALLY LEFT BLANK -- DELETED

[0017] U.S. Patent Application Serial No. [__/___,___] 09/854,933 entitled "High Temperature Super-Conducting Rotor Coil Support With Split Coil Housing And Assembly Method", filed May 15, 2001 (atty. dkt. 839-1006);

[0018] U.S. Patent Application Serial No. [__/___,___] 09/854,931 entitled "Synchronous Machine Having Cryogenic Gas Transfer Coupling To Rotor With Super-Conducting Coils", filed May 15, 2001 (atty. dkt. 839-1007);

[0019] U.S. Patent Application Serial No. [__/___,___] 09/855,026 entitled "High Temperature Super-Conducting Synchronous Rotor Coil Support With Tension Rods And Method For Assembly Of Coil Support", filed May 15, 2001 (atty. dkt. 839-1008);

[0020] U.S. Patent Application Serial No. [__/___,___] 09/854,946 entitled "High Temperature Super-Conducting Rotor Coil Support With Tension Rods And Bolts And Assembly Method", filed May 15, 2001 (atty. dkt. 839-1009);

[0021] U.S. Patent Application Serial No. [__/___,___] 09/854,939 entitled "High Temperature Super-Conducting Coils Supported By An Iron Core Rotor", filed May 15, 2001 (atty. dkt. 839-1010);

[0022] U.S. Patent Application Serial No. [__/___,___] 09/854,938 entitled "High Temperature Super-Conducting Synchronous Rotor Having An Electromagnetic Shield And Method For Assembly", filed May 15, 2001 (atty. dkt. 839-1011);

[0023] U.S. Patent Application Serial No. [__/___,___] 09/854,937 entitled "High Temperature Super-Conducting Rotor Having A Vacuum Vessel And Electromagnetic Shield And Method For Assembly", filed May 15, 2001 (atty. dkt. 839-1016);

[0024] U.S. Patent Application Serial No. [__/___,___,] 09/854,944 entitled "A High Power Density Super-Conducting Electric Machine", filed May 15, 2001 (atty. dkt. 839-1019);

[0025] U.S. Patent Application Serial No. [__/___,___] 09/854,943 entitled "Cryogenic Cooling System For Rotor Having A High Temperature Super-Conducting Field Winding", filed May 15, 2001 (atty. dkt. 839-1062);

[0026] U.S. Patent Application Serial No. [__/___,___] 09/854,464 entitled "High Temperature Super-Conducting Racetrack Coil", filed May 15, 2001 (atty. dkt. 839-1063); and

[0027] U.S. Patent Application Serial No. [__/___,___] 09/855,034 entitled "High Temperature Super Conducting Rotor Power Leads", filed May 15, 2001 (atty. dkt. 839-1064).

IN THE CLAIMS

The changes to the claims are indicated below:

1. (Amended) In a synchronous machine, a rotor comprising:

a rotor core;

a super-conducting coil winding extending around at least a portion of the rotor core, said coil winding having a coil end section adjacent an end of said rotor core, and

[a] end coil support attached to and bracing said end section and being thermally isolated from said rotor core, wherein the end coil support attaches along a side of said end section parallel to a rotor axis.

2. (Amended) In a rotor as in claim 1 wherein said end coil support is a split clamp.

3. (Amended) In a rotor as in claim 1 wherein the end coil support includes a pair of plates between which [are] sandwiched the coil end section.

4. (Amended) In a rotor as in claim 1 further comprising a cryogenic coupling providing cooling fluid to said coil winding, wherein said end coil support is cooled by conduction from said coil winding.

5. (Amended) In a rotor as in claim 1 further comprising a rotor end shaft having a slot to receive said coil end section and end coil support, and said end shaft is thermally isolated from said end coil support.

6. (Amended) In a rotor as in claim 1 wherein said end coil support braces an entire length of said coil end section.

7. (Amended) In a rotor as in claim 1 wherein said end coil support is transverse to an axis of the rotor core.

8. (Amended) In a rotor as in claim 1 further comprising a second coil end section adjacent a second end of said rotor core, and a second coil support bracing the second end coil end section.

9. (Amended) In a rotor as in claim 1 [wherein said coil support] further [comprises] comprising side coil supports attached to a long side section of said coil.

10. (Amended) In a rotor as in claim [1] 9 wherein said side coil supports further comprises at least one tension rod extending transversely through said rotor core, and coil housings attached to opposite ends of the tension rod,

wherein said coil housings each attached to an opposite long side section of the coil.

12. (Amended) A method for supporting a super-conducting coil winding on a rotor core of a synchronous machine comprising the steps of:

e. bracing an end section of the coil winding with an end coil support attached to at least one side of the end section parallel to a rotor core axis;

f. assembling the coil winding, end coil support and rotor core;

g. attaching a rotor end shaft to said rotor core;

h. thermally isolating the end coil support from the rotor core and shaft.

15. (Amended) A method as in claim 12 wherein the bracing step includes applying plates on opposite surfaces of the end section, wherein the opposite surfaces are parallel to the rotor coil axis.

17. (Amended) A rotor for a synchronous machine comprising:

a rotor core having at least one rotor core end orthogonal to a longitudinal axis of the rotor;

at least one end shaft attached to said rotor core end;

a race-track super-conducting (SC) coil winding extending around said rotor core and having a coil end section adjacent said rotor end;

a coil support brace attached to said coil end section and thermally isolated from said rotor core and rotor end shaft, wherein the coil support brace is affixed to a surface of the coil end section parallel to the axis of the rotor.

21. (Amended) In a rotor as in claim [1] 17 wherein said rotor end shaft has a slot to receive said coil end section and coil support, and said end shaft is thermally isolated from said coil support.